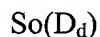


stabilizer. Yield was 50 g of ethylene/hexene copolymer corresponding to an activity of 5.0 g/g·hr·MPa.

[100] What is claimed is:

1 1. A functionalized catalyst support comprising a particulated, solid support material having
2 chemically bonded thereto a conjugated or non-conjugated diene or alkyne containing ligand
3 group.

1 2. A functionalized catalyst support according to claim 1 having a chemical structure of the
2 following formula:



3 wherein:

5 So is a particulated, solid support material;

6 D is a conjugated or non-conjugated diene or alkyne containing ligand attached to the
7 particulated solid support containing up to 20 atoms other than hydrogen; and

8 d is a positive number that is equal to the number of D groups attached to the substrate,
9 So.

1 3. A functionalized catalyst support according to claim 1 or 2 wherein the support is silica,
2 and d is chosen to provide a concentration of D groups on the substrate from $1 \times 10^{-5} \mu$
3 mole/gram to 1 mmole/ gram, more preferably from 0.1 μ mole/gram to 500 μ mole/g.

1 4. A functionalized catalyst support according to claim 3, wherein So possesses non-ionic,
2 Lewis acid functionality a', of the formula $-\text{Me}_m\text{K}_k$, on the surface thereof, wherein:

3 Me, is a Group 2, 12 or 13 metal, especially Al, bonded to the substrate, So,

4 K is an extractable or exchangeable, anionic ligand group, especially a hydrocarbyl or
5 halohydrocarbyl group of up to 20 atoms, not counting hydrogen, and

6 m and k are selected to provide charge balance.

1 5. A supported catalyst composition comprising the reaction product of:

2 (a) the functionalized catalyst support of claim 1, and

3 (b) a Group 3-10 or Lanthanide metal complex containing a substituent which reacts
4 with the functionalized catalyst support to thereby form a supported catalyst composition that is
5 capable of activation to form an active polymerization catalyst for the polymerization of addition
6 polymerizable monomers.

1 6. A supported catalyst composition according to claim 5, wherein the Group 3-10 metal
2 complex contains at least one π -bonded anionic ligand group which is a conjugated or non-
3 conjugated, cyclic or non-cyclic dienyl group, an allyl group, aryl group, or a substituted
4 derivative thereof.

1 7. A supported catalyst composition according to claim 6, wherein the π -bonded anionic
2 ligand group is a cyclopentadienyl group or a derivative thereof.

1 8. A supported catalyst composition according to any one of claims 5-7 additionally
2 comprising an activator capable of activating the Group 3-10 of Lanthanide metal complex so as
3 to be catalytically active for the polymerization of addition polymerizable monomers.

1 9. A polymerization process comprising contacting one or more addition polymerizable
2 monomers under gas phase or slurry polymerization conditions with a catalyst composition
3 according to Claim 8.

1 10. A process according to claim 9, wherein ethylene is polymerized, optionally with one or
2 more comonomers to form an ethylene homopolymer or copolymer.